BOOK REVIEWS

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Mitochondria and Free Radicals in Neurodegenerative Diseases. Edited by M. Flint Beal, Neil Howell, and Ivan Bodis-Wollner. New York: Wiley-Liss, 1997. Pp. 610. $99.95.

As one of the chapters of this book points out, the need for a comprehensive text covering these topics demonstrates how "the study of neurodegenerative diseases is undergoing a fundamental paradigm shift." Certainly, an impressive body of work, presented authoritatively in this book, demonstrates the importance of mitochondrial dysfunction and oxidative stress in neuronal death.

The book's editors are leaders in the study of mitochondrial genetics, physiology, oxidative stress, and electron transport. There are multiple contributing authors, which is both a strength and a weakness. Much descriptive material repeats throughout the chapters, with the authors applying their own particular spin about how and why a particular molecular, biochemical, or physiologic entity is relevant to neurodegeneration. Repetition enforces various concepts, but some readers might find it wearisome. Newcomers to this work may also find it difficult to separate established principles from less-understood phenomena and opinion. Still, the contentious nature of the field makes this unavoidable, and the book deserves credit for presenting a range of expert views.

Because of the overlap among chapters, the book works better as a reference than as a seamless whole. Still, as long as one keeps in mind that much of the subject matter represents science in progress, the book definitely does deliver. Its overall organization also is effective in guiding the reader through essential themes, moving from basic concepts of mitochondrial physiology and oxidative stress (with subsections on excitotoxicity and apoptosis) to known and potential applications of the basic science to specific neurodegenerative diseases. Certain chapters in this book will appeal primarily to basic scientists, and others will mostly interest those clinicians (the enlightened ones, in my opinion) who are not put off by the view that Alzheimer disease and other neurodegenerative disorders are "mitochondriopathies." Individual readers will no doubt draw their own conclusions about the importance of mitochondrial dysfunction in such diseases.

Because of the speed with which this field is advancing, some of the chapters are already out of date. Still, the book serves as a comprehensive starting point for those wishing to learn more about the importance of mitochondria and oxidative stress in neurodegeneration. Those already knowledgeable in the field will find it sufficiently in-depth to make it a worthwhile addition to their collections, and the detailed chapter bibliographies serve as useful guides to the primary literature. Outsiders to the field may wish to look up Flint Beal's concise 1995 review in *Annals of Neurology,* which covers much of the same ground; those experiencing a palpable feeling of excitement on hearing of the subject matter will be glad to have this book on hand.

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